

WE CLAIM:

1 1. A method for responding to a spurious timeout, comprising:
2 adjusting congestion state values;
3 maintaining a data flow on a network in accordance with the adjusted
4 congestion state values; and
5 re-transmitting previously transmitted data when the previously transmitted
6 data has been deemed to be lost on the network.

1 2. A method according to Claim 1, where the adjusting the congestion
2 state values includes:
3 restoring a slow-start threshold value;
4 setting a pipe value; and
5 re-setting an initial value of a congestion window.

1 3. A method according to Claim 2, wherein the slow-start threshold is a
2 value of usable bandwidth detected prior to the timeout.

1 4. A method according to Claim 2, wherein setting the pipe value
2 includes adding a maximum segment size capable of being sent by a sending host to the
3 difference between the maximum sequence number sent so far and the lowest sequence
4 number that is not yet acknowledged.

1 5. A method according to Claim 2, wherein the re-setting the initial

2 value of the congestion window includes setting the congestion window to be double that
3 of a maximum data segment size.

1 6. A method according to Claim 2, wherein maintaining a data flow in
2 accordance with the adjusted congestion state values includes:
3 transmitting a data packet;
4 receiving an acknowledgement; and
5 re-setting the congestion window by adding the maximum data segment
6 size capable of being sent by the sending host.

1 7. A method according to Claim 2, wherein re-transmitting previously
2 transmitted data when the previously transmitted data has been deemed to be lost on the
3 network includes re-transmitting previously transmitted data when three duplicate
4 acknowledgements are received by a sending host.

1 8. A method according to Claim 7, further comprising implementing a
2 slow-start recovery process.

1 9. A method according to Claim 7, further comprising implementing a
2 slow-start recovery process, which includes:
3 readjusting the pipe value; and
4 re-setting the size of the congestion window in accordance with a pattern of
5 received acknowledgements.

1 10. A method for responding to a spurious timeout on a network,
2 comprising:
3 restoring congestion state values, including setting a limit of data that a
4 sending host can send over the network before receiving an acknowledgement;
5 maintaining a data flow from the sending host; and
6 resetting, upon receiving an acknowledgement, the limit of data that the
7 sending host can send over the network before receiving an acknowledgement.

1 11. A method according to Claim 10, wherein restoring congestion state
2 values includes:
3 restoring a threshold value of available bandwidth prior to the spurious
4 timeout; and
5 adjusting an estimate of data outstanding on the network prior to the
6 spurious timeout.

1 12. A method according to Claim 10, wherein the limit of data that the
2 sending host can send over the network in before receiving an acknowledgement is set to
3 twice the maximum data segment size that the sending host can send.

1 13. A method according to Claim 10, wherein the limit of data that the
2 sending host can send over the network before receiving an acknowledgement is re-set,
3 upon receiving an acknowledgement, by adding the maximum data segment size that the
4 sending host can send.

1 14. A method according to Claim 10, further comprising re-transmitting
2 data when data previously transmitted over the network is confirmed to be lost on the
3 network.

1 15. A method according to Claim 14, wherein data previously
2 transmitted over the network is confirmed to be lost on the network upon receiving three
3 duplicate acknowledgements.

1 16. A method according to Claim 9, further comprising maintaining a
2 data flow according to a slow-start recovery process.

1 17. A computer-readable medium having at least one instruction that,
2 upon detecting a timeout on a network, causes at least one processor to:
3 adjust congestion state values;
4 maintain a data flow on the network; and
5 re-transmit previously transmitted data when the previously transmitted
6 data is determined to be lost on the network.

1 18. A computer-readable medium according to Claim 17, wherein the at
2 least one instruction to adjust congestion state values includes at least one instruction that
3 causes at least one processor to:
4 adjust an estimate of an amount of data outstanding in the network to one
5 maximum segment size capable of being sent by the sending host plus the difference
6 between the maximum sequence number sent so far and the lowest sequence number that

7 is not yet acknowledged.

1 19. A computer-readable medium according to Claim 17, wherein the at
2 least one instruction to adjust congestion state values includes at least one instruction to:
3 limit an amount of data that a sending host can send before receiving an
4 acknowledgement to be twice a maximum data segment size capable of being sent by the
5 sending host.

1 20. A computer-readable medium according to Claim 19, wherein the at
2 least one instruction to maintain a data flow on the network includes at least one
3 instruction to:
4 increase the amount of data that the sending host can send before receiving
5 an acknowledgement by the maximum data segment size capable of being sent by the
6 sending host.

1 21. A computer-readable medium according to Claim 17, wherein the at
2 least one instruction to re-transmit previously transmitted data when the previously
3 transmitted data is determined to be lost on the network includes at least one instruction
4 that causes at least one processor to:
5 initiate slow-start processing.

1 22. An apparatus for spurious timeout recovery, comprising:
2 a transmitter to transmit data packets;
3 a transmission timer to detect a spurious timeout; and

4 a response processor to maintain a data flow until data is confirmed to be
5 lost on a network.

1 23. An apparatus according to Claim 22, wherein the response processor
2 is to:

3 adjust congestion state values;

4 maintain a data flow on a network in accordance with the adjusted
5 congestion state values; and

6 re-transmit previously transmitted data when the previously transmitted
7 data has been deemed to be lost on the network.

1 24. An apparatus according to Claim 23, wherein to adjust congestion
2 state values is to:

3 set a limit to the amount of data that a sending host can send before
4 receiving an acknowledgement to be twice the size of a data segment that the sending
5 host can send.

1 25. An apparatus according to Claim 23, wherein to maintain a data flow
2 on the network in accordance with the adjusted congestion state values is to:

3 reset, upon receiving an acknowledgement, a limit to the amount of data
4 that a sending host can send before receiving an acknowledgement by adding the size of a
5 data segment that the sending host can send; and

6 transmitting data on the network.

1 26. An apparatus according to Claim 23, wherein to re-transmit
2 previously transmitted data when the previously transmitted data has been deemed to be
3 lost on the network is to re-transmit the previously transmitted data upon receiving three
4 duplicate acknowledgements.

1 27. An apparatus according to Claim 27, wherein the apparatus is to
2 further process a slow-start recovery.

1 28. A processor, comprising:
2 means for adjusting congestion state values;
3 means for maintaining a data flow on a network in accordance with the
4 adjusted congestion state values; and
5 means for re-transmitting previously transmitted data when the previously
6 transmitted data has been deemed to be lost on the network.

1 29. A processor according to Claim 28, wherein the means for
2 maintaining the data flow on the network in accordance with the adjusted congestion
3 state values re-sets, upon receiving an acknowledgement, a limit to the amount of data
4 that a sending host can send before receiving an acknowledgement by adding the size of a
5 data segment that the sending host can send and continues to transmit data on the
6 network.

1 30. A processor according to Claim 28, wherein the means for re-
2 transmitting previously transmitted data re-transmits the previously transmitted data upon

3 receiving three duplicate acknowledgements.